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## To Improve the Interactivity of the History Educational Games with Digital Interactive Storytelling

Qiulian Song<sup>1</sup>, Ling He<sup>2</sup>, Xiaoqiang Hu<sup>2</sup><sup>1</sup>Modern Educational Technology Center, Xinyu Univeristy, Xinyu, China<sup>2</sup>Jiangxi Science and Technique Normal University, Nanchang, China

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### Abstract

DIS and History Educational Games are two important tools in Technology-Enhances Learning for History knowledge that would benefit from their mutual cooperation. On the one hand History Educational Games can help the history courses more attractive and motivational for the students; on the other hand, DIS supplies the interactive and adaptive environment for the students to have the chances to select the different plot and control the development of the history.

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### 1. Introduction

Educational Games become a more and more important field for researchers and practitioners to foster learning with fun and pleasure. One of the knowledge areas where educational games have been applied is history. Educational games of historical themes enable learners to understand the process and evolution of history as the mental masters, and know the inevitability of the development of real history.

At present the game is not a lack of entertainment, some historical themes of the games also have some of the characteristics of education, players can master certain knowledge of history in the process, but they are only the games, containing a lot of the ingredients Joking Remarks, can not be entirely in accordance with the history to design games.

How to master the balance and the coherent between the entertainment and the educational efficacy? It needs the intruction the game-based learning thoery. The educational game, game-based learning and the Digital Storytelling have some common, so we can use the relationship between them to design the educational games and to enhance the game-based learning acitivities.

## 2. About the Digital Storytelling

### 2.1 What's Digital Storytelling?

Digital Storytelling refers to using digital tools so that ordinary people can tell their own real-life stories. They can use digital media such as pictures, hypertext, video, audio and so on. However, the definition of digital storytelling is still the subject of much debate. Digital Storytelling" is an emerging term, one that arises from a grassroots movement that uses new digital tools to help ordinary people tell their own 'true stories' in a compelling and emotionally engaging form.

### 2.2 What's Interactive and Adaptive Digital Storytelling?

Digital Interactive Storytelling (DIS) design is structuring an intensive and meaningful interactive experience at the same time as enabling the development of a good pre-authored plot. DIS allows creating a bespoke story according to user interactions. As a mixture of storytelling, game technologies, and user interactions, DIS provides users the ability to interact with the storyteller and the story characters in real-time, so that dynamic and customized storylines can be generated.

In Adaptive Digital Narrator, the child user can choose two endings within the story, a “good” ending, or an “evil” ending. The path that they decide to take is ultimately dependent on the choices they make through the options available to them. In Adaptive Digital Narrator, “good” is represented by giving other characters in the story things that they like. Likewise, “evil” is represented by giving other characters things that they dislike. Things which that a character neither likes nor dislikes are neutral items, and do not significantly affect the story.

## 3. The Adaptive Storytelling can Improve the Design of History Educational Games

We can use the models of interactive and adaptive storytelling to establish a comprehensive theoretical framework for combining learning and gaming. Integrating adaptive storytelling with gaming activities can motivate and compel learning environments. The game activity is a dynamic process .

This framework is based on a holistic understanding as well as a formal ontological representation of interacting processes involved in active and dynamic learning processes.

The dynamic processes adaptive and interactions are consisted of three components in the framework for adaptive interventions and probabilistic knowledge assessments. The game environments concludes three parts: Game Engine, Narrative Engine and Adaptive Engine. The challenge of build a game environment for History Educational Games is creating a dynamic and plausible adaptive narratives. In order to supply different process and endings for the player to play the game, the game should have enormous and entails laborious manual editing of branching narratives.

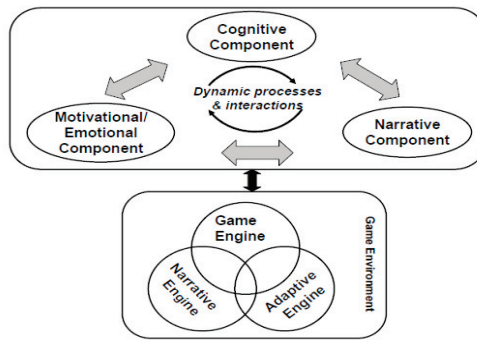


Figure 1 A dynamic model of an adaptive gaming environment (Effie Lai-Chong Law & Michael D. Rust-Kcikmeier)

## 4. The DIS into the Design of the History Educational Games

### 4.1 The Disadvantage of the History Educational Games

Although the historical facts is very important, the History Educational Games can not be really accurate to the historical facts. The present History Educational Games is more for fun in one hand, and don't have enough interaction for the players to select the plot in the other hand. So the motivation and the immersion and the power of controlling the history development of students can not be improved. In the case, the students have no chance to analyze how critical decisions may affect the course of history.

So it is very necessary to establish a theoretical basis for generic but engaging, immersive and adaptive storytelling in History Educational Games. We use the dynamic model of an adaptive gaming environment with the adaptive digital storytelling. The learners can assume the plot in different perspectives, imagine the present plot with reason, and define the developing way. It's very good for the learners to foster their faculty of reason of history and think logically.

### 4.2 The application of DIS in History Educational Games

The application of DIS in History Educational Games is not to combine them rigidly, while we consider that how to immerge DIS into History Educational Games. With the player interactions, DIS provides players the ability to interact with the storyteller of the serious game and the game characters in real-time, so that dynamic and customized storylines of the game can be generated.

From the analysis of DIS, we can learn something that are useful for designing History Educational Games. shows the Process of History Educational Games Supported by DIS. The following are the key steps and the differences between the History Educational Games system supported by DIS and that of before.

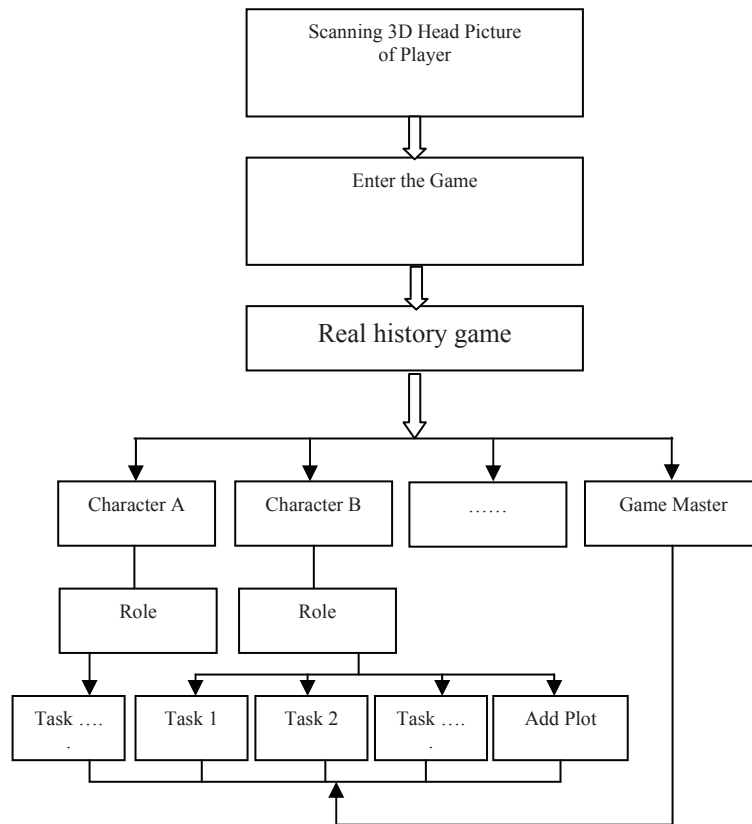


Figure 2 the Process of History Educational Game Supported by DIS

#### 4.3 The Design Strategies of History Educational Games

We can learn the design of the engaging feature of the History Educational Games from the game “The Records of Three Kingdoms”. First time, the learner should play the game through the prior plot with the development of history, so the learner can have the full image of the regular of history development and have the correct understanding of history. Based on the first real history plot, the player can change the history in different circumstance.

The players can select the plot of the History Educational Games, either according the main line of the history or the main characters of the history. We can divide the History Educational Games with the DIS into three kinds.

1) According the real history, the player plays a military officer who is not a real history character and the player can have his/her own name for the character. The real history will not be changed;

2) In the real history background, the player play the game as the king and thinking the present political circumstance. For example, if you were Liubei, what would you do to make the country uniform?

3) The history is not perfect, it may have this or that mistake. So the player can change the history to more better situation, if he add someone important into the plot , and then how will the history go on? The player can be fostered his/her abilities of history judgment. For example, how did the three kingdoms appear? Why are three kingdom not two or four? If the player create a new king, what is the end of that period.

## 5. Conclusions

DIS and History Educational Games are two important tools in Technology-Enhances Learning for History knowledge that would benefit from their mutual cooperation. On the one hand History Educational Games can help the history courses more attractive and motivational for the students; on the other hand, DIS supplies the interactive and adaptive environment for the students to have the chances to select the different plot and control the development of the history. The implementation of melting the DIS into the History Educational Games has a good potential future for the Game-base Learning and Technology-Enhances Learning.

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